	Application No.	Applicant(s)	
Notice of Allowability	10/054,543	LIANG ET AL.	
	Examiner	**Art Unit**	
	Cicely Ware	2611	

*-- The **MAILING DATE** of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed on 7/21/2006*.

2. ☒ The allowed claim(s) is/are *1,3-9,11-24,26-31,38,44-49 renumbered as 1-35*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the

            International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

REASONS FOR ALLOWANCE

1.   The following is an examiner's statement of reasons for allowance: The following

is a statement of reasons for the indication of allowable subject matter: The instant

application discloses a method of achieving transmit diversity gain for frequency

selective fading channels in a communication system. Prior art references show similar

methods but fail to teach: **"deriving real channel coefficients from uplink channel**

coefficients for use in selecting the functions g1(k), g2(k) of the pre-equalizers",

as in claims 1 and 6; **"the transmit processors do not add cyclic prefixes and one**

of the output signals from the it processors is delayed by DELTA..taU before the

respective selected transmit beamforming weight is applied thereto", as in claim 8;

"wherein the physical channel h(n;k) consists of two time-delayed rays, h1(n;k)

and h2 (n;k), with delay DELTA..taU the beamforming weights being chosen such

that the delayed signal or its inverse fast Fourier transform (IFFT) only goes

through one channel h1(n;k) between the base station multiple transmit antennae

and the receive antenna, whilst the undelayed signal or its IFFT only goes

through another channel h2(n;k) between the base station multiple transmit

antennae and the receive antenna, thereby creating two different channels which

can be space-time decoded to recover the transmitted signal", as in claim 11;

"wherein the physical channel h(n;k) consists of two time-delayed clustered rays,

h1(n;k) and h2(n;k), with delay Ψ, and maximum excess delay for the clusters $\Delta\,\Psi$

the transmit processors have a cyclic prefix length of $\Delta\,\Psi$ and one of the output

signals from the transmit processors is delayed by Ψ before the respective

selected transmit beamforming weight is applied thereto", as in claim 15; "wherein

the physical channel h(n;k) consists of two time-delayed rays, h1(n;k) and h2(n;k)

with delay DELTA..taU further comprising a delay of DELTA..taU interposed

between one of the multiple access transmit processor outputs and a

beamformer to delay the signal output from the it processor by DELTA..taU

before the respective selected transmit beamforming weight is applied transmit

thereto, wherein the transmit processors do not add cyclic prefixes", as in claim

24; "wherein the physical channel h(n;k) consists of two time-delayed clustered

rays, h1(n;k) and h2(n;k), with delay Ψ and maximum excess delay for the

clusters Δ Ψ, further comprising a delay of Ψ interposed between one of the

multiple access transmit processor outputs and a beamformer to delay the signal

output from the transmit processor by Ψ before the respective selected transmit

beamforming weight is applied thereto, the transmit processors having a cyclic

prefix length of Δ Ψ", as in claim 26; "a first processor to determine a power-delay-

DOA profile estimate for channel h(n;k); and based on the profile, determine: the

length, Δ Ψ, of the cyclic prefix to be added by the transmit processors; the delay

Ψ ; diversity order and modulation scheme; and the transmit beamforming

weights", as in claim 27; "wherein the physical channel h(k) consists of two time-

delayed rays delay DELTA..taU the beamforming weights are chosen such that

the delayed signal only goes through one ray h1(k) between the base station

multiple transmit antennae and the receive antenna, whilst the undelayed signal

only goes through another ray h2(k) between the base station multiple transmit

antennae and the receive antenna", as in claim 31 and 38; **"'wherein delay of**

DELTA..taU is interposed between the space-time encoder and one of the beam

formers such that the major components of the transmitted signals are received

at least a single receive antenna at the same time", as in claim 44.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

2.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Cicely Ware whose telephone number is 571-272-3047.

The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jay Patel can be reached on 571-272-2988. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9314 for

regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

Cicely Ware

cqw
September 13, 2006   KHAI TRAN
                                                          PRIMARY EXAMINER